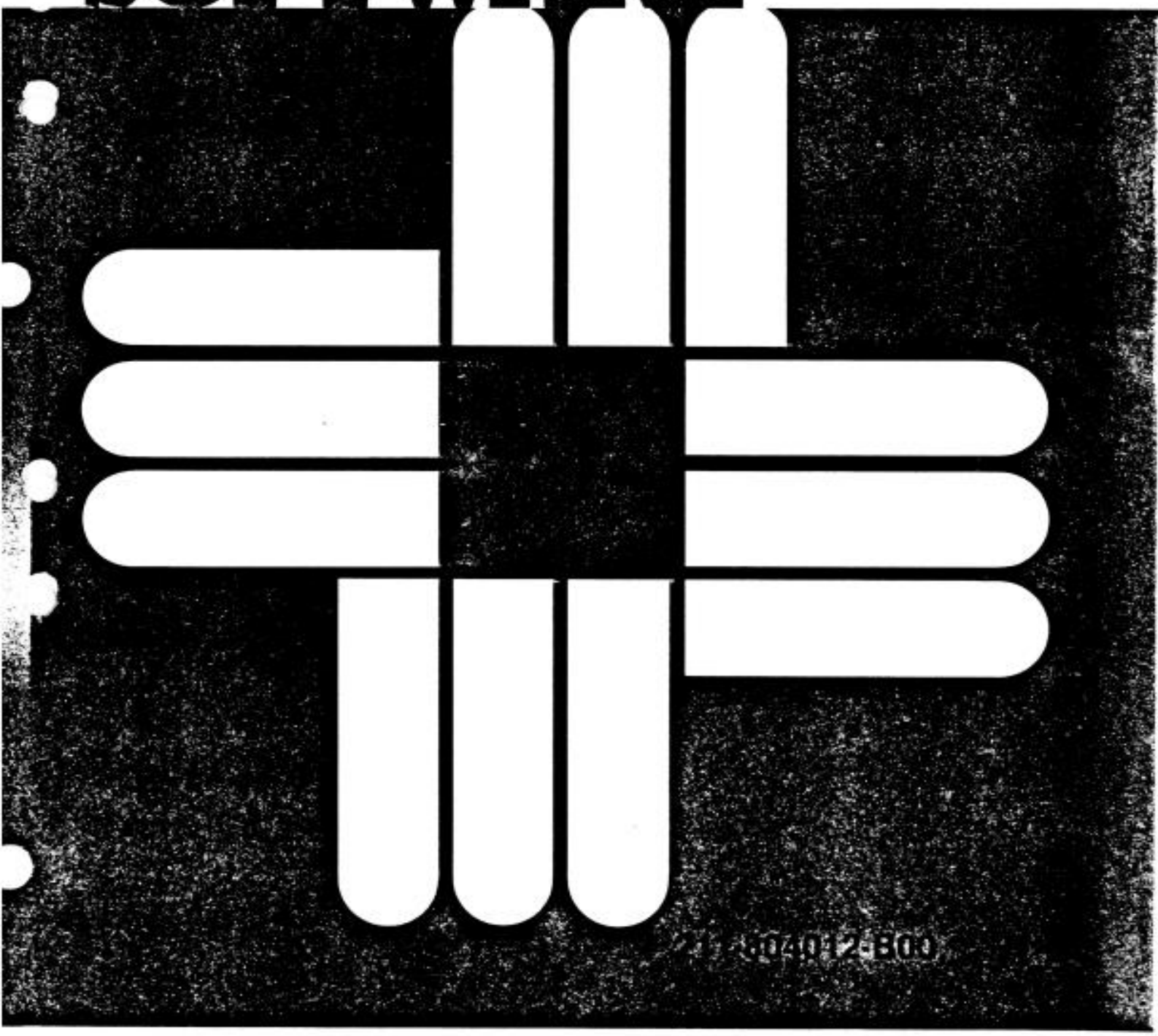
MODCOMP
MODULAR COMPUTER SYSTEMS, INC.

MAX IV/MAX 32
Programmer's Reference Manual

Binary Record Dump

SOFTWARE



Binary Record Dump

SOFTWARE

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--	09/80	Reissue (A.1).
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MODULAR COMPUTER SYSTEMS, INC.
1650 WEST McNAB ROAD
FORT LAUDERDALE, FL 33309

PREFACE

Audience
The information in this manual is directed to the user who wants to display records written in MODCOMP standard binary mode or any other record mode.

Subject
This manual contains information on the Binary Record Dump (BRD) processor. It describes how to use it, what options can be used, and the error messages that can occur.

Related Publications
Refer to the following manuals for additional information. When ordering manuals, use the manual order number listed below. The most current revision level (REV) will be shipped.

Manual Order Number	Manual Title
213-804005-REV	MAX IV Basic I/O System System Guide Manual(SGM)
213-838005-REV	MAX 32 Basic I/O System System Guide Manual(SGM)

Special Symbols and Notations
A revision (|) bar located in the margin of a page indicates a change to the manual. This change generally represents a technical change to the product due to product revision. Revision bars are also used in the Table of Contents to flag the general location of changes in the text.

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CHAPTER 1
UTILIZATION AND FORMAT

1.1 Purpose

Binary Record Dump (BRD) is used to display records in hexadecimal, decimal, ASCII, or compressed alphanumeric (CAN) code format on list output.

BRD assumes that the records it dumps are in MODCOMP standard binary mode. The user is not limited to displaying records in MODCOMP standard binary mode, any record located on any device can be displayed. When a record is not in MODCOMP standard binary mode, errors may be indicated but the record content will be accurately displayed.

1.2 Use

Before executing BRD, assign the BI and DO files . Assign BI to the file that is to be displayed and the DO file to the display file/device. Be sure that the BI file is properly positioned. Select the options desired and specify them on the $EXE BRD statement.

BRD terminates listing the file when a file mark or End-of-Media (EOM) is encountered on BI. When this occurs, BRD:

- Stops listing the file
- Writes an End-of-File to DO
- Exits

The operating system then reloads Job Control.

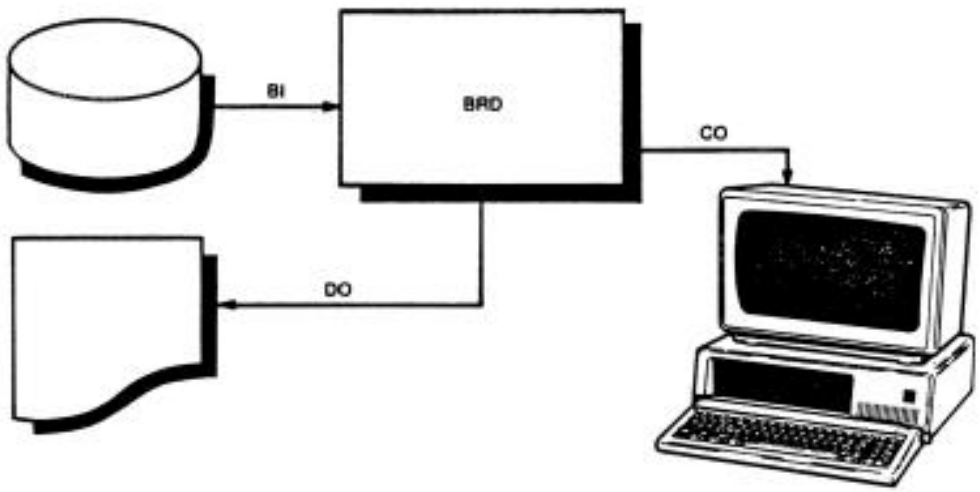

Figure 1-1. Binary Record Dump File Usage

EXAMPLE

```
$ASS BI LB DO LP
$EXE BRD
$REW BI
```

These Job Control commands cause the LB file to be listed on the DO file in hexadecimal format and then output to the LP device/file. Hexadecimal is the default listing format if an option is not used.

1.3 Listing Format

The format of a BRD listing is :

```
BINARY DUMP FROM DEVICE XXX
Display of record 1
.
.
.
Display of record n
```

where XXX is the physical device to which BI is ultimately assigned. If BI is assigned to a MAX IV FIle Manager file, the device name FM is used.

The format for the display of each record is :

```
RECORD nnnn FPI: fffff, SIZE: bbbbb BYTES, UFT STATUS: ssss
.
.
contents of the record in the format specified
```

where:

nnnn is the relative record number (the first record displayed is record 1).

fffff is the file position index returned in the UFT by the I/O system.

bbbbb is the size of the record in bytes.

ssss is the hexadecimal value of the UFT status word (word 0).

The following listing is an example of the output from two MAX IV modules comprising each one record when using BRD. No options are used.

```
BINARY DUMP FROM DEVICE $FMS

RECORD      1   FPI:      0, SIZE:     256 BYTES, UFT STATUS: 0000
    18 APR 85 11:25:18   /BAT004
BIN(0000) 0300 0100 E4B3 F000 2EE5 B20C 8000 5084 /BAT004
BIN(0008) 0000 A004 0004 0800 0001 0002 0003 0004 /BAT004
BIN(0010) 2054 4553 5420 4D45 0800 5353 4147 4520 /BAT004
BIN(0018) 3132 3334 3536 0000 2054 0800 4553 5420 /BAT004
BIN(0020) 4D45 5353 4147 4520 3132 3334 0800 3536 /BAT004
BIN(0028) 0000 2054 4553 5420 4D45 5353 4147 0800 /BAT004
BIN(0030) 4520 3132 3334 3536 0000 2054 4553 5420 /BAT004
BIN(0038) 0800 4D45 5353 4147 4520 3132 3334 3536 /BAT004
BIN(0040) 0000 0800 2054 4553 5420 4D45 5353 4147 /BAT004
BIN(0048) 4520 3132 0800 3334 3536 0000 2054 4553 /BAT004
BIN(0050) 5420 4D45 5353 0800 4147 4520 3132 3334 /BAT004
BIN(0058) 3536 0000 2054 4553 0800 5420 4D45 5353 /BAT004
BIN(0060) 4147 4520 3132 3334 3536 0800 0000 2054 /BAT004
BIN(0068) 4553 5420 4D45 5353 4147 4520 0800 3132 /BAT004
BIN(0070) 3334 3536 0000 2054 4553 5420 4D45 0800 /BAT004
BIN(0078) 5353 4147 4520 3132 3334 3536 0000 2054 /BAT004

RECORD      2   FPI:      1, SIZE:     256 BYTES, UFT STATUS: 0000
    18 APR 85 11:25:18   /BAT004
BIN(0000) 0701 0072 6262 0800 4553 5420 4D45 5353 /BAT004
BIN(0008) 4147 4520 3132 3334 0800 3536 0000 2054 /BAT004
BIN(0010) 4553 5420 4D45 5353 4147 0800 4520 3132 /BAT004
BIN(0018) 3334 3536 0000 2054 4553 5420 0800 4D45 /BAT004
BIN(0020) 5353 4147 4520 3132 3334 3536 0000 5083 /BAT004
BIN(0028) 0000 A003 0003 5083 0004 5082 0000 A002 /BAT004
BIN(0030) 0002 0300 ED20 FE00 E620 B003 0180 0000 /BAT004
BIN(0038) 7000 0000 0000 0000 0000 0000 0000 0000 /BAT004
BIN(0040) 0000 0000 0000 0000 0000 0000 0000 0000 /BAT004
BIN(0048) 0000 0000 0000 0000 0000 0000 0000 0000 /BAT004
BIN(0050) 0000 0000 0000 0000 0000 0000 0000 0000 /BAT004
BIN(0058) 0000 0000 0000 0000 0000 0000 0000 0000 /BAT004
BIN(0060) 0000 0000 0000 0000 0000 0000 0000 0000 /BAT004
BIN(0068) 0000 0000 0000 0000 0000 0000 0000 0000 /BAT004
BIN(0070) 0000 0000 0000 0000 0000 0000 0000 0000 /BAT004
BIN(0078) 0000 0000 0000 0000 0000 0000 0000 0000 /BAT004
```

CHAPTER 2
ERROR MESSAGES AND USER OPTIONS

2.1 Error Messages

Errors detected in the record read from the BI file cause error messages to be listed prior to the display of the record. No action is required, the listing will continue until EOF or EOM.

2.1.1 Records in MODCOMP Standard Binary Mode

ILLEGAL BINARY RECORD - Indicates that the record was not a MODCOMP standard binary mode record because the first byte of the record was not #03 or #07. This has no effect on the the contents of the record.

SEQUENCE ERROR - Indicates that the record is out of sequence according to the standard binary mode (second byte). This has no effect on the contents of the record.

CHECKSUM ERROR - Indicates that in a MODCOMP standard binary mode record there is a checksum error in the data.

UFT ERROR - Indicates an unsuccessful read or the occurrance of an event (EOF, EOM, et cetera).

2.1.2 All Other Records

If the records displayed are not in MODCOMP standard binary mode, the illegal binary record, sequence, and checksum errors can be ignored for the contents of the record is not effected.

UFT ERROR - Indicates an unsuccessful read or the occurrance of an event (EOF, EOM,et cetera).

2.2 Options

Specify system and dollar options when invoking BRD. Any combination of options can be specified. This example selects the $HO option which holds after each record, $AS displays multiple formats, HO displays multiple files, and $SU suppresses repeated values.

EXAMPLE

```
$ASS BI LB DO LP
EXE BRD,,$HO,$AS,HO,$SU
```

2.2.1 System Options

AO - When the AO option is set, BRD uses a record size of 32766 bytes for devices that have unlimited record size. The most common device is magnetic tape. IF AO is reset, a record size of 256 bytes is used.

HO - This option is used so that multiple files can be displayed with a single execution of BRD. With the HO option set, BRD outputs a message before the first file is read and when an EOF is encountered on BI. The message "MOUNT ON BI" is displayed and a HOLD occurs awaiting user response. The user can make either of the following responses through OC:

```
/R      BRD displays the next file
/R NO   BRD exits
```

If HO is reset, there is no hold, and BRD exits when detecting an End-of-File.

2.2.2 Dollar Options

$HO - When the $HO option is selected, BRD holds after each record is displayed. When the hold occurs, the user can make either of the following responses through OC:

```
/R      BRD displays the next record

/R NO   BRD exits
```

$DE - When the $DE option is selected, the records are dumped in decimal format rather than hexadecimal format.

$AS - When the $AS option is selected, records are displayed in multiple formats. If $AS is specified and $DE is not specified, the display includes hexadecimal, ASCII, and compressed alphanumeric (CAN) format. If $DE and $AS are both specified, records are displayed in decimal and ASCII format. SEE Appendix A for Character Codes.

$SE - When the $SE option is selected, the end-of-file on DO is suppressed. This allows you to perform multiple BRD dumps without encountering an end-of-file and eliminates the banner pages between each dump.

$SU - When the $SU option is selected, repeated values are suppressed.

The following example illustrates a standard binary mode record. The $AS, $SU, AND $SE options were used but not the $DE option. This caused the output to be in hexadecimal, ASCII, and compressed alphanumeric (CAN) format.

```
BINARY DUMP FROM DEVICE BIG

RECORD      1  FPI:      0, SIZE:    256 BYTES, UFT STATUS: 0000
    15 APR 85 21:05:09  /BAT004
BIN(0000) 0700 005C 0662 F000 ...\.b..  AD5  BL A 7 .P  /BAT004
BIN(0004) 2EE5 B20C 8000 5084 ......P.  GTE 1ST TSH L8L /BAT004
BIN(0008) 0000 A004 0004 0800 ........      YXD   D AKH /BAT004
BIN(000C) 0001 0002 0003 0004 ........    A   B   C   D /BAT004
BIN(0010) 2054 4553 5420 4D45  TEST ME  EF9 KCO MRP LNU /BAT004
BIN(0014) 0700 5353 4147 4520 ..SSAGE   AD5 MMK JQ4 KBP /BAT004
BIN(0018) 3132 3334 3536 0000 123456..  G77 HG1 HTV     /BAT004
BIN(001C) 5083 0000 A003 0003 P.......  L8K     YXC   C /BAT004
BIN(0020) 5083 0004 5082 0000 P...P...  L8K   D L8J     /BAT004
BIN(0024) A002 0002 0300 ED20 .......   YXB   B  SH ::X /BAT004
BIN(0028) FE00 E620 B003 0180 ... ....  !!! 955 1FS  IX /BAT004
BIN(002C) 0000 7000 0000 0000 ..p.....      Q95         /BAT004
FROM  0030  TO  007B  ALL   0000      ..
BIN(007C) 0000 0000 0000 0000 ........                  /BAT004
```

Appendix A

CHARACTER CODES

ASCII		Card Code		EBCDIC		Compressed Alpha-Numeric		TTY		Line Printer	
ASCII CHAR.	HEX. Code	029 Key Punch Symbol	ANSI Code	Char.	HEX. Code	COMP. Char.	CAN Code	TTY	HEX. Code	L.P. Symbol	HEX. Code
NUL	00	M.P.	12-0-9-8-1	NUL	00			NUL	80		
SOH	01	M.P.	12-9-1	SOH	01			SOM	81		
STX	02	M.P.	12-9-2	STX	02			EOA	82		
ETX	03	M.P.	12-9-3	ETX	03			EOM	83		
EOT	04	M.P.	9-7	EOT	37			EDT	84		
ENQ	05	M.P.	0-9-8-5	ENQ	2D			WRU	85		
ACK	06	M.P.	0-9-8-6	ACK	2E			RU	86		
BEL	07	M.P.	0-9-8-7	BEL	2F			BEL	87		
BS	08	M.P.	11-9-6	BS	16			FE_0	88		
HT	09	M.P.	12-9-5	HT	05			HT	89		
LF	0A	M.P.	0-9-5	LF	25			LF	8A		
VT	0B	M.P.	12-9-8-3	VT	0B			VT	8B		
FF	0C	M.P.	12-9-8-4	FF	0C			FORM	8C		
CR	0D	M.P.	12-9-8-5	CR	0D			RETURN	8D		
SO	0E	M.P.	12-9-8-6	SO	0E			SO	8E		
SI	0F	M.P.	12-9-8-7	SI	0F			SI	8F		
DLE	10	M.P.	12-11-9-8-1	DLE	10			DC0	90		
DC1	11	M.P.	11-9-1	DC1	11			X-ON	91		
DC2	12	M.P.	11-9-2	DC2	12			TAPE	92		
DC3	13	M.P.	11-9-3	DC3	13			X-OFF	93		
DC4	14	M.P.	9-8-4	DC4	3C			$\overline{\text{TAPE}}$	94		
NAK	15	M.P.	9-8-5	NAK	3D			ERROR	95		
SYN	16	M.P.	9-2	SYN	32			SYC	96		
ETB	17	M.P.	0-9-6	ETB	26			LEM	97		
CAN	18	M.P.	11-9-8	CAN	18			S0	98		
EM	19	M.P.	11-9-8-1	EM	19			S1	99		
SUB	1A	M.P.	9-8-7	SUB	3F			S2	9A		
ESC	1B	M.P.	0-9-7	ESC	27			S3	9B		
FS	1C	M.P.	11-9-8-4	S4	9C			FS	1C		
GS	1D	M.P.	11-9-8-5	GS	1D			S5	9D		
RS	1E	M.P.	11-9-8-6	RS	1E			S6	9E		
US	1F	M.P.	11-9-8-7	US	1F			S7	9F		
SPACE	20	SPACE BAR	(NO PUNCH)	SPACE	40	SPACE	0	SPACE	A0	SPACE	20
!	21	!	12-8-7	!	4F			!	A1	!	21
"	22	"	8-7	"	7F			"	A2	"	22
#	23	#	8-3	#	7B			#	A3	#	23

M.P. = Multi-Punch (No-Symbol)

ASCII		Card Code		EBCDIC		Compressed Alphanumeric		TTY		Line Printer	
ASCII Char.	HEX. Code	029 Key Punch Symbol	ANSI Code	Char.	HEX. Code	COMP. Char.	CAN Code	TTY	HEX. Code	L.P. Symbol	HEX. Code
$	24	$	11-8-3	$	5B	$	39	$	A4	$	24
%	25	%	0-8-4	%	6C			%	A5	%	25
&	26	&	12	&	50			&	A6	&	26
'	27	'	8-5	'	7D			'	A7	'	27
(	28	(	12-8-5	(	4D			(	A8	(	28
)	29	)	11-8-5	)	5D			)	A9	)	29
*	2A	*	11-8-4	*	5C			*	AA	*	2A
+	2B	+	12-8-6	+	4E			+	AB	+	2B
,	2C	,	0-8-3	,	6B			,	AC	,	2C
–	2D	–	11	–	60			–	AD	–	2D
.	2E	.	12-8-3	.	4B		38	.	AE	.	2E
/	2F	/	0-1	/	61			/	AF	/	2F
0	30	0	0	0	F0	0	27	0	B0	0	30
1	31	1	1	1	F1	1	28	1	B1	1	31
2	32	2	2	2	F2	2	29	2	B2	2	32
3	33	3	3	3	F3	3	30	3	B3	3	33
4	34	4	4	4	F4	4	31	4	B4	4	34
5	35	5	5	5	F5	5	32	5	B5	5	35
6	36	6	6	6	F6	6	33	6	B6	6	36
7	37	7	7	7	F7	7	34	7	B7	7	37
8	38	8	8	8	F8	8	35	8	B8	8	38
9	39	9	9	9	F9	9	36	9	B9	9	39
:	3A	"	8-2	"	7A	:	37	:	BA	:	3A
;	3B	;	11-8-6	;	5E			;	BB	;	3B
<	3C	<	12-8-4	<	4C			<	BC	<	3C
=	3D	=	8-6	=	7E			=	BD	=	3D
>	3E	>	0-8-6	>	6E			>	BE	>	3E
?	3F	?	0-8-7	?	6F			?	BF	?	3F
@	40	@	8-4	@	7C			@	C0	@	40
A	41	A	12-1	A	C1	A	1	A	C1	A	41
B	42	B	12-2	B	C2	B	2	B	C2	B	42
C	43	C	12-3	C	C3	C	3	C	C3	C	43
D	44	D	12-4	D	C4	D	4	D	C4	D	44
E	45	E	12-5	E	C5	E	5	E	C5	E	45
F	46	F	12-6	F	C6	F	6	F	C6	F	46
G	47	G	12-7	G	C7	G	7	G	C7	G	47
H	48	H	12-8	H	C8	H	8	H	C8	H	48
I	49	I	12-9	I	C9	I	9	I	C9	I	49
J	4A	J	11-1	J	D1	J	10	J	CA	J	4A
K	4B	K	11-2	K	D2	K	11	K	CB	K	4B
L	4C	L	11-3	L	D3	L	12	L	CC	L	4C
M	4D	M	11-4	M	D4	M	13	M	CD	M	4D
N	4E	N	11-5	N	D5	N	14	N	CE	N	4E

M.P. = Multi-Punch (No-Symbol)

ASCII		Card Code		EBCDIC		Compressed Alphanumeric		TTY		Line Printer	
ASCII Char.	HEX. Code	029 Key Punch Symbol	ANSI Code	Char.	HEX. Code	COMP. Char.	CAN Code	TTY	HEX. Code	L.P. Symbol	HEX. Code
O	4F	O	11-6	O	D6	O	15	O	CF	O	4F
P	50	P	11-7	P	D7	P	16	P	D0	P	50
Q	51	Q	11-8	Q	D8	Q	17	Q	D1	Q	51
R	52	R	11-9	R	D9	R	18	R	D2	R	52
S	53	S	0-2	S	E2	S	19	S	D3	S	53
T	54	T	0-3	T	E3	T	20	T	D4	T	54
U	55	U	0-4	U	E4	U	21	U	D5	U	55
V	56	V	0-5	V	E5	V	22	V	D6	V	56
W	57	W	0-6	W	E6	W	23	W	D7	W	57
X	58	X	0-7	X	E7	X	24	X	D8	X	58
Y	59	Y	0-8	Y	E8	Y	25	Y	D9	Y	59
Z	5A	Z	0-9	Z	E9	Z	26	Z	DA	Z	5A
[	5B	¢	12-8-2	¢	4A			[	DB	[	5B
\	5C	\	0-8-2	\	E0			\	DC	\	5C
]	5D	!	11-8-2	!	5A			]	DD	]	5D
Δ	5E	¬	11-8-7	^	5F			↑	DE	^	5E
_	5F	_	0-8-5	_	6D			←	DF	_	5F
`	60	M.P.	8-1	`	79						
a	61	M.P.	12-0-1	a	81						
b	62	M.P.	12-0-2	b	82						
c	63	M.P.	12-0-3	c	83						
d	64	M.P.	12-0-4	d	84						
e	65	M.P.	12-0-5	e	85						
f	66	M.P.	12-0-6	f	86						
g	67	M.P.	12-0-7	g	87						
h	68	M.P.	12-0-8	h	88						
i	69	M.P.	12-0-9	i	89						
j	6A	M.P.	12-11-1	j	91						
k	6B	M.P.	12-11-2	k	92						
l	6C	M.P.	12-11-3	l	93						
m	6D	M.P.	12-11-4	m	94						
n	6E	M.P.	12-11-5	n	95						
o	6F	M.P.	12-11-6	o	96						
p	70	M.P.	12-11-7	p	97						
q	71	M.P.	12-11-8	q	98						
r	72	M.P.	12-11-9	r	99						
s	73	M.P.	11-0-2	s	A2						
t	74	M.P.	11-0-3	t	A3						
u	75	M.P.	11-0-4	u	A4						
v	76	M.P.	11-0-5	v	A5						
w	77	M.P.	11-0-6	w	A6						
x	78	M.P.	11-0-7	x	A7						

M.P. = Multi-Punch (No-Symbol)

ASCII		Card Code		EBCDIC		Compressed Alphanumeric		TTY		Line Printer	
ASCII Char.	HEX. Code	029 Key Punch Symbol	ANSI Code	Char.	HEX. Code.	COMP. Char.	CAN Code	TTY	HEX. Code	L.P. Symbol	HEX. Code
y	79	M.P.	11-0-8	y	A8						
z	7A	M.P.	11-0-9	z	A9						
{	7B	M.P.	12-0	{	C0						
¦	7C	M.P.	12-11	¦	6A						
}	7D	M.P.	11-0	}	D0						
~	7E	M.P.	11-0-1	~	A1						
DEL	7F	M.P.	12-9-7	DEL	07			RUB OUT	FF		

M.P. = Multi-Punch (No-Symbol)

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Fold

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 3624 FT. LAUDERDALE, FL 33309

POSTAGE WILL BE PAID BY ADDRESSEE

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1650 W. McNAB ROAD
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Corporate Headquarters:
MODULAR COMPUTER SYSTEMS, Inc., 1650 West McNab Road, P.O. Box 6099, Ft. Lauderdale, FL 33310, Tel: (305) 974-1380, TWX: 310-372-7837

International Headquarters:
MODULAR COMPUTER SERVICES, Inc., The Business Centre, Molly Millars Lane, Wokingham, Berkshire, RG11 2JQ, UK, Tel: 0734-786808, TLX: 851849149

Latin American Sales Headquarters:
MODULAR COMPUTER SYSTEMS, Inc., 1650 West McNab Road, P.O. Box 6099, Ft. Lauderdale, FL 33310, Tel: (305) 975-6562, TLX: 3727652

Canadian Headquarters:
MODCOMP Canada, Ltd., 400 Matheson Blvd. East, Unit 24, Mississauga, Ontario, Canada L4Z 1N8, Tel: (416) 890-0666, TELEX: 06-961279

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